DYNAFORM 5.7.1 Release Notes (November 2009)

DFE

1. Add new unfold method "Box Unfold" in Unfold Flange function to unfold the selected flange surface with emboss surfaces.   The feature of the embossment on the flange surface remains unchanged after the unfold.
2. Add "Total Tipping Result" in Tipping page to record the tipping translations and rotations.
3. Improve "Double Fill" function so that the control lines will not cross each other.
4. Improve "Define Binder Orientation" in Create Binder page so that the user can define rotation center and enter rotation angle value.
5. Re-design "Move Binder" GUI and add Reset button.
6. Re-design "Rotate Binder" GUI and add Reset button.
7. Improve "Define Current Binder" function so that the user can define imported binder geometry as the current binder.
8. Add "Fix Boundary" in Flange on Binder to allow the user to constrain the binder outer boundary.
9. Improve geometry method of develop trim line function in Addendum, and re-design GUI.
10. Improve "Edit Feature Line (Fline)" function in DFE -> Addendum -> Modification menu.
11. Add new function "Diamond" in DFE -> Modification to allow the user to create a "Diamond" shape on a tool mesh to improve springback.
12. Add new function "Rib" in DFE -> Modification to allow the user to create a "Rib" shape on a tool mesh to improve springback.
13. Add "Reset" option in Tipping function.

AutoSetup

1. Add "Insert position" option in the "New process stage" dialog box, which allows the user to insert a new stage before/after a selected stage.
2. The "Active" check box In Autosetup menu allows the user to active/deactivate one or multiple stages for multistage simulation. The program will not output the LS-DYNA deck for the deactivated stage.
3. Allow the user to define friction coefficient as a table. The table represents the coefficient of friction as a function of the relative velocity and pressure.
4. Allow the user to alter the value of IGAP in the contact dialog box.
5. Add lancing in trimming stage. The lance operation is performed by ETA's solver, which is linked to the eta/Job Submitter.

6. Add nodal force in springback stage. Allow the user to apply a force to a set of nodes.
7. Add inertia relief for springback constraint. If no boundary conditions are added, an eigenvalue computation is automatically performed by using the Inertia Relief option to find any rigid body modes and then automatically constrain them out of the springback simulation.
8. Allow the user to define contact between the rigid body tools.
9. Allow the user to set the gap for tool positioning.
10. Remove "full run" option for submitting job.
11. Allow the user to select the solver and assign the memory for different stages in the job options dialog box.
12. Add a tab for thermal forming. Allow the user to specify the thermal material for blanks and tools; allow the user to specify the individual thermal contact for blank and tools.
13. Add thickness, area and mass information in the summary dialog box.
14. Change the label "thickness" to "distance" in the copy elements dialog box.
15. Add accuracy level option in the control tab. The user can select level of accuracy and calculation speed by sliding the slider bar to adjust execution parameters such as the time step, mass scaling, and adaptive mesh.
16. Add "Adaptive Frequency" Control via Curve to define variable frequency of refining mesh.

BSE

1. Add new function "Formability Report" in BSE submenu. After the user estimates the blank outline and analyzes the formability, this function will automatically use the Postprocessor to generate plots and export the analysis result to a file.
2. Add new function "Double Attach" in Preparation GUI to allow the user to design Double Attach and fill the gap by defining the part geometry.
3. Add new function "Product Area" in Preparation GUI for the user to calculate the area of product model by selecting surfaces or elements.
4. Add "Total Tipping Result" in Tipping page to record the tipping translations and rotations.
5. Add "Restraint Condition" option in MSTEP -> Advanced dialog for the user to adjust the restraint condition applied to sheet boundary.
6. Add "Optimization" group in Nesting -> Setup page, such as "Max. Utili", "Min. Price", "Form Type" and "Draw Type" options for the user to select and get better nesting result according to different requests.
7. Add "By Default" and "By Csv File" options in Setup -> Parameters group for the user to control the Edge Width and Bridge Span.
8. Modify "Width > Pitch" to "Width > Pitch*0.5" when the user selects Two-pair,

Mirror, Isosceles-trapezoid and Trapezoid nesting types to get better nesting result.

9. Add "Price" page in Nesting Group for the user to nest outline with minimum price.

10. Add "Calculate 3D Trim Line" button in Result page. After running MSTEP and shrinking the pitch, this function will automatically project the adjusted 2D line onto the 3D product part and the user can view the 3D trim line on the part after exiting the Nesting dialog box.

11. Add "Calculate Addendum" button in Result page for the user to compensate the addendum value; this function can automatically calculate an appropriate addendum according to the current nesting result (nesting utilization) and compensating rate to set the addendum value.

12. Allow the user to modify "Edge Width", "Bridge Span", "Width > Pitch", "Nesting Parameter", "Compensating Rate" and "Mstep Constraint Condition" default values in dynaformdefault.config file.

13. Improve MSTEP -> Trim line function. The entire product part or flange of the part can be defined as SHEET in Trimline evaluation. If the entire product part is defined as sheet, the program will automatically add constraint information.   The user does not need to define constraints individually.

14. Add "Auto Save" option in Mstep so that the database will be saved after running the Job.

15. Allow the user to define materials for multiple parts parts by pressing the Ctrl key while selecting parts in Define Blank GUI window in MSTEP.

16. Add "Surface BDY gap" in Batch BSE -> Mesh parameter for improved mesh and nesting result.

Preprocess

1. Improve "Offset Line" function to support repetitive operation and allow the user to drag line to offset in Preprocess -> Line.

2. Allow the user to reject the selection and offer preview function when clicking "Enter" in "Extend line".

3. Allow the user to reject the selection by using the right mouse button in "Trim surface".

4. Add new function "Offset Surface" to allow the user to offset surface(s).

5. Add "Boundary" option in "Select Element" to allow the user to select elements on the boundary.   Any element having at least one node belonging to the boundary will be selected.

6. Add "Line" option in "Select Element" to allow the user to select elements by selecting a closed line.

7. Add "All in Region" option in "Select Element". If this option is checked, the program will include the elements in the selected region when all nodes belonging to this element are included in the selected region. If this option is not checked, the

program will include these elements in the selection when at lease one of the element's nodes is inside the selected region.

8. Add new function "Anneal" to allow the user to execute the anneal process. This function will allow the user to eliminate the stress and strain tensors or scale down these values.
9. Adopt the last input values in "Offset Elements" function when re-entering the function.
10. Selection of the "Show value" function in "Deviation Check" can be rejected by clicking the right mouse button.
11. Allow repair of degenerated element using Coincide Node function in Model Check dialog.
12. Allow the user to select multiple files in "Import" dialog box.
13. Display names of some material parameters such as P1, P2 and so on.
14. Modify the default blank mesh value to 32 mm corresponding to the tool radius of 6 mm.
15. Allow the user to decide whether or not to save the created LCS into database in "Transform" function.
16. Remove the "Full Run" option from the analysis type.
17. Add the unit setting option in default configuration file to allow the user to set unit system.
18. Adjust the deviation range according to the practical deviation automatically when setting the range to 0 in Deviation Check.
19. Add new function "Edit Default Config" under Option menu to allow the user to set the default configuration.
20. Allow the user to control number of digits after decimal point for "Label Dimension" in "Edit Default Config".
21. Material 36 supports 6 curves in RS and QS when HR=7. The variables are P1, P2, R00, R45, R90 and E.
22. Material 125 supports load curve.
23. Separate section lines from elements and surfaces from different parts, and put the different section lines into different new parts.
24. Activate the Resize button in DYNAFORM main window to allow the user to resize the window.

Mesh

1. Improve meshing speed in Blank Mesh function by 3 to 7 times.
2. Fix a bug in Tool Mesh that generates bad element pattern in the fillet surface.
3. Improve meshing speed in Tool Mesh function by 20%.

I/O Module

1. Support *.dxf format when exporting file.

Job Submitter

1. Add a solver type "ETA-Solver" for trimming and lancing.
2. Add NCPU input for SMP solver.

Post-process

1. Enhance FLD function to allow the user to change default FLD distribution ("True" or "Engineering") in configuration file.
2. Add "Export list" in "List value" function to write contour value of the selected element/node in a text file.
3. Add new macro command to support BSE Formability Report.
4. Improve section cut, add section color control and section animation.
5. Enhance FLD precision between 2D and 3D mapping method.
6. Fix problem in reading FLD0 from index file.
7. Fix problem in calculating principal strain for solid/thick shell element.
8. Fix problem in importing "project_name.binout" in Graph.